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10/523,120	05/03/2006	Takashi Yoshimura	VPM-02101	5095

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EXAMINER	
DUDA, ADAM K	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/523,120	YOSHIMURA ET AL.	
	Examiner	Art Unit	
	ADAM DUDA	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE . MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/3/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) *1-16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/24/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 17 recites the limitation "the input side" in line 1. There is insufficient antecedent basis for this limitation in the claim.

4. Claim 17 recites the limitation "the output side" in line 3. There is insufficient antecedent basis for this limitation in the claim.

5. Claim 17 recites the limitation "the message" and “said message”. It is uncertain whether these limitations are in reference to “a message” of line 1 or “a message” of line 4 or whether “a message” of line 1 is “a message” of line 4 also. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 17 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

a. It is unclear whether “the input side” of line 1 (in reference to "a station”) is the same “the input side” of line 11 (appears to be in reference to "the interconnected station") since there is no distinguishment between the two "the input side". Same issues apply to all references of “the input side” for claim 17 and its dependent claims.

b. It is unclear whether “the output side” of line 3 is the same as the other “the output side” disclosed in claim 17 and its dependent claims.

c. It is unclear whether the “responding” of line 9 or the "delay" of line 10 are done "for a prescribed time".

d. It is unclear whether all “the interconnected station” are the same or whether they are referencing different “the interconnected station” devices.

e. Lines 4-6 disclose the limitation of “response means for returning response to a request to receive and accept a message TO the interconnected station on the input side WHEN receiving said message FROM said interconnected station”. The language suggests that “response means for returning a response to a request to receive and accept a message TO the interconnect station” should state “FROM the interconnect station". Furthermore, lines 11-12 state that “response means conducts congestion control by responding with a delay for a prescribed time to the request to receive and accept said message FROM the interconnected station”. Also, lines 4-6 suggest, by using the word "WHEN" that "returning a response to a request to receive and accept a message" and "receiving said message” occur at the same time. This

cannot be so because “a message” is “said message” and “a request” is sent before "a message” to check whether the “station” would "receive and accept" message identified as “a message” but then apparently “said message” refers to “a message” and is being “received” while the station is “returning a response to a request to receive and accept a message”. From the language of the claim the most reasonable interpretation that can be made is that the limitation should state "response means for returning a response to a request to receive and accept a message FROM the interconnected station on the input side BEFORE receiving said message from said interconnected station" instead of "response means for returning a response to a request to receive and accept a message TO the interconnected station on the input side WHEN receiving said message from said interconnected station". Furthermore, the limitation could be something along the lines of “response means for returning a response to a request to receive and accept a message FROM the interconnected station on the input side AFTER receiving said request to receive and accept a message from said interconnected station".

7. Claim 18 recites the limitation "the prescribed delay time" in line 1. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 19 recites the limitation "the session" in line 3. There is insufficient antecedent basis for this limitation in the claim.

9. Claim 19 recites the limitation "said message information" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is uncertain whether the “said message information” is in relations to "message information" of claim 17 and whether the "said message information of the session" is the same as “message information” of claim 17.

10. Claim 25 recites the limitation "the input side" in line 1. There is insufficient antecedent basis for this limitation in the claim.

11. Claim 25 recites the limitation "the output side" in line 3. There is insufficient antecedent basis for this limitation in the claim.

12. Claim 25 recites the limitation "the own station" in line 10. There is insufficient antecedent basis for this limitation in the claim.

13. Claim 25 recites the limitation "the message" and “said message”. It is uncertain whether these limitations are in reference to “a message” of line 1 or “a message” of line 4 or whether “a message” of line 1 is “a message” of line 4 also. There is insufficient antecedent basis for this limitation in the claim.

14. Claim 25 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are:

f. It is unclear whether “the input side” of line 1 (in reference to "a station”) is the same “the input side” of line 12 (appears to be in reference to "the interconnected station") since there is no distinguishment between the two "the

input side". Same issues apply to all references of “the input side” for claim 25 and its dependent claims.

g. It is unclear whether “the output side” of line 3 is the same as the other “the output side” disclosed in claim 25 and its dependent claims.

h. It is unclear whether the “responding” of line 9 or the "delay" of line 10 are done "for a prescribed time".

i. It is unclear whether all “the interconnected station” are the same or whether they are referencing different “the interconnected station” devices.

j. Lines 4-6 disclose the limitation of “response means for returning response to a request to receive and accept a message TO the interconnected station on the input side WHEN receiving said message FROM said interconnected station”. The language suggests that “response means for returning a response to a request to receive and accept a message TO the interconnect station” should state “FROM the interconnect station". Furthermore, lines 12-13 state that “response means conducts congestion control by responding with a delay for a prescribed time to the request to receive and accept said message FROM the interconnected station”. Also, lines 4-6 suggest, by using the word "WHEN" that "returning a response to a request to receive and accept a message" and "receiving said message” occur at the same time. This cannot be so because “a message” is “said message” and “a request” is sent before "a message” to check whether the “station” would "receive and accept" message identified as “a message” but then apparently “said message” refers to

"a message" and is being "received" while the station is "returning a response to a request to receive and accept a message". From the language of the claim the most reasonable interpretation that can be made is that the limitation should state "response means for returning a response to a request to receive and accept a message FROM the interconnected station on the input side BEFORE receiving said message from said interconnected station" instead of "response means for returning a response to a request to receive and accept a message TO the interconnected station on the input side WHEN receiving said message from said interconnected station". Furthermore, the limitation could be something along the lines of "response means for returning a response to a request to receive and accept a message FROM the interconnected station on the input side AFTER receiving said request to receive and accept a message from said interconnected station".

15. Claim 26 recites the limitation "the prescribed delay time" in line 1. There is insufficient antecedent basis for this limitation in the claim.

16. Claim 27 recites the limitation "the session" in line 3. There is insufficient antecedent basis for this limitation in the claim.

17. Claim 27 recites the limitation "said message information" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is uncertain whether the "said message information" is in relations to "message information" of claim 25 and whether the "said message information of the session" is the same as "message information" of claim 25.

Claim Rejections - 35 USC § 103

18. the following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims **17** and **25** rejected under 35 U.S.C. 103(a) as being unpatentable over **Fukuta ("US 5,090,011")** in view of **Tokura ("US 5,400,329")**.

Fukuta discloses:

Regarding claim 17, a station (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50b") for receiving a message (see Fukuta; FIG. 12 and FIG. 13; "DATA") from an interconnected station (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50a" and "PACKET SWITCHES 60a-c") on the input side (i.e. input side of the "PACKET TERMINAL EQUIPMENT 50b"; see Fukuta; FIG. 12 and FIG. 13; devices "50a" and "60 a-c" are sending "DATA" to "PACKET TERMINAL EQUIPMENT 50b" thus on "the input side" of "PACKET TERMINAL EQUIPMENT 50b") and transmitting message information relating to the received message (see Fukuta; FIG. 12 and FIG. 13; "CONGESTION NOTICE"; col. 11 lines 41-55; "The packet switch 60c transfers at an occurrence of the congestion, a packet from the packet communications equipments equipment 50a to the packet communication equipment 50b and sends further a congestion notice packet to the packet

communication equipment 50a") to an interconnected station on the output side (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50a" and "PACKET SWITCHES 60a-c"; col. 11 lines 41-55; "The packet switch 60c transfers at an occurrence of the congestion, a packet from the packet communications equipments equipment 50a to the packet communication equipment 50b and sends further a congestion notice packet to the packet communication equipment 50a" thus sends it downstream to a interconnected station on the output side of the station), comprising: response means (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" generated by response means.) for returning a response (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE") to a request to receive and accept a message <to (FROM?)> (see Fukuta; FIG. 16; "POLLING"; col. 13 lines 35-49; using "polling packet" to poll receiver by transmitter to determine if receiver will receive and accept a message) the interconnected station on the input side (see Fukuta; FIG. 12, FIG. 13, FIG. 16; PACKET TERMINAL EQUIPMENT 50a" and "PACKET SWITCHES 60a-c" are on the input side of "PACKET TERMINAL EQUIPMENT 50b") <when (BEFORE?)> receiving said message from said interconnected station (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" sent after "POLLING" and before "DATA"); and congestion detection means (see Fukuta; col. 6 lines 8-19; "congestion detector 223 for measuring the number of occupied packets in a buffer to detect buffer congestion and with a congestion indicator adding circuit 225 for setting the congestion indicator region(CONG)") for detecting that

congestion has occurred in the interconnected station on the output side (see Fukuta; FIG. 16; “CONGESTION NOTICE”, “CONGESTION PERIOD”, “CONGESTION CEASE NOTICE” thus existence of a congestion detections means that, by definition, detects whether congestion has occur on the interconnection station on the output side), wherein when occurrence of congestion (see Fukuta; FIG. 16; “CONGESTION NOTICE” after data sent, thus an occurance of congestion) is detected by said congestion detection means (see Fukuta; col. 6 lines 8-19; “congestion detector 223 for measuring the number of occupied packets in a buffer to detect buffer congestion and with a congestion indicator adding circuit 225 for setting the congestion indicator region(CONG)”), said response means conducts congestion control (see Fukuta; FIG. 16; “CONGESTION CEASE NOTICE” is a congestion control notice, thus conducting congestion control) by responding to the request to receive and accept (see Fukuta; FIG. 16; “CONGESTION CEASE NOTICE” is in response to “POLLING” if congestion exists) said message (see Fukuta; FIG. 16; “DATA”) from the interconnected station on the input side (see Fukuta; FIG. 16; “DATA” is from “PACKET TERMINAL EQUIPMENT 50a” and “PACEKT SWITCH 60a-c” thus from the output side to the station input side).

Fukuta is suggestive about:

Regarding claim 17, wherein the responding comprises responding with a delay for a prescribed time (Fukuta does not refer to "delay" throughout his document. He talks about "POLLING” during a “CONGESTION PERIOD” thus

an existence of some sort of delay but is silent about a delay specified by STATION with a prescribed time interval).

However, in the packet switched congestion control field of endeavor:

Tokura more specifically discloses:

Regarding claim 17, wherein the responding comprises responding with a delay for a prescribed time (see Tokura; FIG. 1A, 1B, 1C, 2A, 2B, and 2C; “destination appointed shorter window width” thus a delay for transmitting data if the window was longer; col. 10 lines 18-27; "transfer rate is decreased by setting a packet transmission interval corresponding to $(A*(V_{now} / A)^{Y}$. The packet transmission interval is the value is the value obtained by dviding the packet transfer value V_{now} at that point in time by a minimum packet transfer rate A, raising this to the power y where y is a constant (y<1), and multiplying this by the minimum packet transfer rate A).

Given that the invention of Fukuta and Tokura both relate to packet switched congestion control, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Fukuta, as taught by Tokura, thereby preventing packets from being discarded in the packet network (see Tokura; abstract), allowing buffer memory capacity of nodes in the network to be decreased (see Tokura; abstract), and avoiding the generation of new packets when signal congestion is predicted (see Tokura; abstract).

Fukuta discloses:

Regarding claim 25, a station (see Fukuta; FIG. 12 and FIG. 13; “PACKET TERMINAL EQUIPMENT 50b”) for receiving a message (see Fukuta; FIG. 12 and FIG. 13; “DATA”) from an interconnected station (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50a” and “PACKET SWITCHES 60a-c”) on the input side (i.e. input side of the “PACKET TERMINAL EQUIPMENT 50b”; see Fukuta; FIG. 12 and FIG. 13; devices "50a" and "60 a-c" are sending "DATA" to "PACKET TERMINAL EQUIPMENT 50b” thus on “the input side” of “PACKET TERMINAL EQUIPMENT 50b”) and transmitting message information relating to the received message (see Fukuta; FIG. 12 and FIG. 13; “CONGESTION NOTICE”; col. 11 lines 41-55; “The packet switch 60c transfers at an occurrence of the congestion, a packet from the packet communications equipments equipment 50a to the packet communication equipment 50b and sends further a congestion notice packet to the packet communication equipment 50a”) to the interconnected station on the output side (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50a” and “PACKET SWITCHES 60a-c”; col. 11 lines 41-55; “The packet switch 60c transfers at an occurrence of the congestion, a packet from the packet communications equipments equipment 50a to the packet communication equipment 50b and sends further a congestion notice packet to the packet communication equipment 50a” thus sends it downstream to a interconnected station on the output side of the station), comprising: response means (see

Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" generated by response means.) for returning a response (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE") to a request to receive and accept a message <to (FROM?)> (see Fukuta; FIG. 16; "POLLING"; col. 13 lines 35-49; using "polling packet" to poll receiver by transmitter to determine if receiver will receive and accept a message) the interconnected station on the input side (see Fukuta; FIG. 12, FIG. 13, FIG. 16; PACKET TERMINAL EQUIPMENT 50a" and "PACKET SWITCHES 60a-c" are on the input side of "PACKET TERMINAL EQUIPMENT 50b") <when (BEFORE?)> receiving said message from said interconnected station (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" sent after "POLLING" and before "DATA"); and congestion detection means (see Fukuta; col. 6 lines 8-19; "congestion detector 223 for measuring the number of occupied packets in a buffer to detect buffer congestion and with a congestion indicator adding circuit 225 for setting the congestion indicator region(CONG)") which detects the occurrence of congestion in the own station (see Fukuta; FIG. 16; "CONGESTION NOTICE", "CONGESTION PERIOD", "CONGESTION CEASE NOTICE" thus existence of a congestion detections means that, by definition, detects whether congestion has occur on the interconnection station on the output side) <u>when the filling ratio in a buffer memory that stores said messages or received requests that have not been completely processed exceeds a prescribed filling ratio</u> (see Fukuta; col. 2 lines 45-52; "when it is found that an output line is in a congestion state (namely, the number of packets in the buffer

associated with the output line exceeds a threshold"), wherein when the occurrence of congestion (see Fukuta; FIG. 16; "CONGESTION NOTICE" after data sent, thus an occurance of congestion) in the own station is detected by said congestion detection means (see Fukuta; col. 6 lines 8-19; "congestion detector 223 for measuring the number of occupied packets in a buffer to detect buffer congestion and with a congestion indicator adding circuit 225 for setting the congestion indicator region(CONG)"), said response means conducts congestion control (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" is a congestion control notice, thus conducting congestion control) by responding to the request to receive and accept (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" is in response to "POLLING" if congestion exists) said message (see Fukuta; FIG. 16; "DATA") from the interconnected station on the input side (see Fukuta; FIG. 16; "DATA" is from "PACKET TERMINAL EQUIPMENT 50a" and "PACEKT SWITCH 60a-c" thus from the output side to the station input side).

Fukuta is suggestive about:

Regarding claim 25, wherein the responding comprises responding with a delay for a prescribed time (Fukuta does not refer to "delay" throughout his document. He talks about "POLLING" during a "CONGESTION PERIOD" thus an existence of some sort of delay but is silent about a delay specified by STATION with a prescribed time interval).

However, in the packet switched congestion control field of endeavor:

Tokura more specifically discloses:

Regarding claim 25, wherein the responding comprises responding with a delay for a prescribed time (see Tokura; FIG. 1A, 1B, 1C, 2A, 2B, and 2C; “destination appointed shorter window width” thus a delay for transmitting data if the window was longer; col. 10 lines 18-27; "transfer rate is decreased by setting a packet transmission interval corresponding to $(A*(V_{now} / A)^{Y}$. The packet transmission interval is the value is the value obtained by dviding the packet transfer value V_{now} at that point in time by a minimum packet transfer rate A, raising this to the power y where y is a constant (y<1), and multiplying this by the minimum packet transfer rate A).

Given that the invention of Fukuta and Tokura both relate to packet switched congestion control, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Fukuta, as taught by Tokura, thereby preventing packets from being discarded in the packet network (see Tokura; abstract), allowing buffer memory capacity of nodes in the network to be decreased (see Tokura; abstract), and avoiding the generation of new packets when signal congestion is predicted (see Tokura; abstract).

20. Claims **19, 20** and **27, 28** rejected under 35 U.S.C. 103(a) as being unpatentable over **Fukuta ("US 5,090,011")** in view of **Tokura ("US 5,400,329")**, and further in view of **Shozo ("JP 2002-185500")**.

Fukuta in view of Tokura disclose:

Regarding claim 19, the station , with congestion control.

Regarding claim 20, the station , with a plurality of interconnected stations.

Fukuta in view of Tokura are silent about:

Regarding claim 19, wherein the congestion control is also conducted with switching means for switching said message information of the session in which the congestion has occurred to another session when the occurrence of congestion is detected by said congestion detection means.

However, in a related field of endeavor:

Shozo discloses:

Regarding claim 19, wherein the congestion control (see Shozo; abstract; "a communication system for setting and updating proper alternative routes in the standard network system of a 3rd GPP and for eliminating effectively generations of the congestion") is also conducted with switching means for switching said message information of the session in which the congestion has occurred to another session when the occurrence of congestion is detected by said congestion detection means (see Shozo; claim 1; "Communication system

characterized by performing a setup and updating of a communication link of a suitable alternative route, and preventing generating of congestion by supervising the traffic on a communication network and having the connection management node which controls the communication path in the communication system of GPRS").

Regarding claim 20, wherein the plurality of interconnected stations (see Shozo; drawing 10) on the output side and congestion (see Shozo; paragraph 0015; "congestion") has occurred or a closed state has been assumed in all the sessions to a specific interconnected station on the output side (see Shozo; paragraphs 0016-0025), said switching means distributes and sends said message information to other interconnected stations on the output side (see Shozo; paragraph 0025; "the communication system of GPRS, by supervising the traffic on a communication network and having the connection management node which controls the ocmmuncation path, the communication system of this invention performs a setup and updating of a communication link of a suitable alternative route, and is characterized by preventing generating of congestion.").

Given that the invention of Fukuta in view of Tokura and Shozo both relate to lightening the load of communication (i.e. congestion; see Shozo; Abstract) in a communication medium, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Fukuta in view of Tokura, as taught by Shozo, thereby providing a communication system for setting and updating proper

alternative routes in the standard network system of a 3rd GPP and for eliminating effectively generations of the congestions, to provide a determining method for the alternative routes, and to provide a recording medium for recoding therein the determining program of the alternative routes (see Shozo; abstract).

Fukuta in view of Tokura disclose:

Regarding claim 27, the station , with congestion control.

Regarding claim 28, the station , with a plurality of interconnected stations.

Fukuta in view of Tokura are silent about:

Regarding claim 27, wherein the congestion control is also conducted with switching means for switching said message information of the session in which the congestion has occurred to another session when the occurrence of congestion in the interconnected station on the output side is detected by said congestion detection means.

However, in a related field of endeavor:

Shozo discloses:

Regarding claim 27, wherein the congestion control (see Shozo; abstract; "a communication system for setting and updating proper alternative routes in the standard network system of a 3rd GPP and for eliminating effectively generations of the congestion") is also conducted with switching means for switching said message information of the session in which the congestion has occurred to

another session when the occurrence of congestion in the interconnected station on the output side is detected by said congestion detection means (see Shozo; claim 1; "Communication system characterized by performing a setup and updating of a communication link of a suitable alternative route, and preventing generating of congestion by supervising the traffic on a communication network and having the connection management node which controls the communication path in the communication system of GPRS").

Regarding claim 28, wherein the plurality of interconnected stations (see Shozo; drawing 10) on the output side and congestion (see Shozo; paragraph 0015; "congestion") has occurred or a closed state has been assumed in all the sessions to a specific interconnected station on the output side (see Shozo; paragraphs 0016-0025), said switching means distributes and sends said message information to other interconnected stations on the output side (see Shozo; paragraph 0025; "the communication system of GPRS, by supervising the traffic on a communication network and having the connection management node which controls the ocmmuncation path, the communication system of this invention performs a setup and updating of a communication link of a suitable alternative route, and is characterized by preventing generating of congestion.").

Given that the invention of Fukuta in view of Tokura and Shozo both relate to lightening the load of communication (i.e. congestion; see Shozo; Abstract) in a communication medium, it would have been obvious to one of ordinary skill in the art at

the time of the invention to modify the invention of Fukuta in view of Tokura, as taught by Shozo, thereby providing a communication system for setting and updating proper alternative routes in the standard network system of a 3rd GPP and for eliminating effectively generations of the congestions, to provide a determining method for the alternative routes, and to provide a recording medium for recoding therein the determining program of the alternative routes (see Shozo; abstract).

21. Claims **21, 22** and **29, 30** rejected under 35 U.S.C. 103(a) as being unpatentable over **Fukuta ("US 5,090,011")** in view of **Tokura ("US 5,400,329")**, and further in view of **SMS Forum ("Short Message Peer to Peer Protocol Specification")**.

Fukuta in view of Tokura disclose:

Regarding claim 21, the station , wherein said congestion detection means (see Fukuta; col. 6 lines 8-19; "congestion detector 223 for measuring the number of occupied packets in a buffer to detect buffer congestion and with a congestion indicator adding circuit 225 for setting the congestion indicator region(CONG)") detects that congestion has occurred in the interconnected station on the output side (see Fukuta; FIG. 16; "CONGESTION NOTICE", "CONGESTION PERIOD", "CONGESTION CEASE NOTICE" thus existence of a congestion detections means that, by definition, detects whether congestion has occur on the interconnection station on the output side) in a response returned from the interconnected station on the output side (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" is a congestion control notice, thus conducting congestion control) in response to a request to transfer said message information to the interconnected station on the output side (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50a" and "PACKET SWITCHES 60a-c"; col. 11 lines 41-55; "The packet switch 60c transfers at an occurrence of the congestion, a packet from the packet communications equipments equipment 50a to the packet communication equipment 50b and sends further a congestion

notice packet to the packet communication equipment 50a" thus sends it downstream to a interconnected station on the output side of the station).

Regarding claim 22, the station , wherein said congestion detection means (see Fukuta; col. 6 lines 8-19; "congestion detector 223 for measuring the number of occupied packets in a buffer to detect buffer congestion and with a congestion indicator adding circuit 225 for setting the congestion indicator region(CONG)") detects that congestion has occurred in the interconnected station on the output side (see Fukuta; FIG. 16; "CONGESTION NOTICE", "CONGESTION PERIOD", "CONGESTION CEASE NOTICE" thus existence of a congestion detections means that, by definition, detects whether congestion has occur on the interconnection station on the output side) in the response from the interconnected station on the output side (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" is a congestion control notice, thus conducting congestion control) to a request to transfer said message information to the interconnected station on the output side (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50a" and "PACKET SWITCHES 60a-c"; col. 11 lines 41-55; "The packet switch 60c transfers at an occurrence of the congestion, a packet from the packet communications equipments equipment 50a to the packet communication equipment 50b and sends further a congestion notice packet to the packet communication equipment 50a" thus sends it downstream to a interconnected station on the output side of the station).

Fukuta in view of Tokura are suggesting about:

Regarding claim 21, wherein the response contains an error indicating congestion (see Fukuta; FIG. 13; "CONGESTION NOTICE" represents the congestion state. Whether there is congestion or not, Thus suggestive of a parameter describing the congestion state.).

Regarding claim 22, detection from a parameter representing a congestion state wherein the parameter is contained in said response (see Fukuta; FIG. 13; "CONGESTION NOTICE" represents the congestion state. Whether there is congestion or not, Thus suggestive of a parameter describing the congestion state.).

However, in a related field of endeavor:

SMS Forum discloses:

Regarding claim 21, wherein the response contains an error indicating congestion (see SMS Forum; page 43 "2.9 Flow Control and Congestion Avoidance"; "congestion_state TLV. This parameter may be optionally included in a response PDU sent between an ESME and MC. This TLV contains a simple integer from 0-100 to indicate the congestion state ranging from idle to congested. Refer to 4.8.4.18 for details on the values acceptable for this TLV").

Regarding claim 22, from a parameter representing a congestion state wherein the parameter is contained in said response (see SMS Forum; page 43 "2.9 Flow Control and Congestion Avoidance"; "congestion_state TLV. This parameter may be optionally included in a response PDU sent between an ESME and MC. This TLV contains a simple integer from 0-100 to indicate the congestion state ranging from idle to congested. Refer to 4.8.4.18 for details on the values acceptable for this TLV").

Given that the invention of Fukuta in view of Tokura and SMS Forum both relate to field of congestion control (see SMS Forum; page 43 ”2.9 Flow Control and Congestion Control”) in an TCP/IP based network (see SMS Forum; page 12 ”Figure 1-1 SMPP Network Diagram"), it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Fukuta in view of Tokura, as taught by SMS Forum, thereby better assist a peer (ESME or MC) in avoiding congestion by providing a mechanism to provide the receiving peer with an indication of its state of congestion (see SMS Forum; page 43 “2.9 Flow Control Congestion Avoidance”).

Fukuta in view of Tokura disclose:

Regarding claim 29, the station , wherein said congestion detection means (see Fukuta; col. 6 lines 8-19; “congestion detector 223 for measuring the number of occupied packets in a buffer to detect buffer congestion and with a congestion indicator adding circuit 225 for setting the congestion indicator region(CONG)”) detects that congestion has occurred in the interconnected station on the output side (see Fukuta; FIG. 16; “CONGESTION NOTICE”, “CONGESTION PERIOD”, “CONGESTION CEASE NOTICE” thus existence of a congestion detections means that, by definition, detects whether congestion has occur on the interconnection station on the output side) has been returned from

the interconnected station on the output side (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" is a congestion control notice, thus conducting congestion control) in response to a request to transfer said message information to the interconnected station on the output side (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50a" and "PACKET SWITCHES 60a-c"; col. 11 lines 41-55; "The packet switch 60c transfers at an occurrence of the congestion, a packet from the packet communications equipments equipment 50a to the packet communication equipment 50b and sends further a congestion notice packet to the packet communication equipment 50a" thus sends it downstream to a interconnected station on the output side of the station).

Regarding claim 30, the station , wherein said congestion detection means (see Fukuta; col. 6 lines 8-19; "congestion detector 223 for measuring the number of occupied packets in a buffer to detect buffer congestion and with a congestion indicator adding circuit 225 for setting the congestion indicator region(CONG)") detects that congestion has occurred in the interconnected station on the output side (see Fukuta; FIG. 16; "CONGESTION NOTICE", "CONGESTION PERIOD", "CONGESTION CEASE NOTICE" thus existence of a congestion detections means that, by definition, detects whether congestion has occur on the interconnection station on the output side) in the response from the interconnected station on the output side (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" is a congestion control notice, thus conducting congestion control) to a request to transfer said message information to the interconnected

station on the output side (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50a" and "PACKET SWITCHES 60a-c"; col. 11 lines 41-55; "The packet switch 60c transfers at an occurrence of the congestion, a packet from the packet communications equipments equipment 50a to the packet communication equipment 50b and sends further a congestion notice packet to the packet communication equipment 50a" thus sends it downstream to a interconnected station on the output side of the station)

Fukuta in view of Tokura are suggesting about:

Regarding claim 29, wherein the response contains an error indicating congestion (see Fukuta; FIG. 13; "CONGESTION NOTICE" represents the congestion state. Whether there is congestion or not, Thus suggestive of a parameter describing the congestion state.).

Regarding claim 30, detection from a parameter representing a congestion state wherein the parameter is contained in said response (see Fukuta; FIG. 13; "CONGESTION NOTICE" represents the congestion state. Whether there is congestion or not, Thus suggestive of a parameter describing the congestion state.).

However, in a related field of endeavor:

SMS Forum discloses:

Regarding claim 29, wherein the response contains an error indicating congestion (see SMS Forum; page 43 "2.9 Flow Control and Congestion Avoidance"; "congestion_state TLV. This parameter may be optionally included in a response PDU sent between an ESME and MC. This TLV contains a simple integer from 0-100 to

indicate the congestion state ranging from idle to congested. Refer to 4.8.4.18 for details on the values acceptable for this TLV").

Regarding claim 30, from a parameter representing a congestion state wherein the parameter is contained in said response (see SMS Forum; page 43 "2.9 Flow Control and Congestion Avoidance"; "congestion_state TLV. This parameter may be optionally included in a response PDU sent between an ESME and MC. This TLV contains a simple integer from 0-100 to indicate the congestion state ranging from idle to congested. Refer to 4.8.4.18 for details on the values acceptable for this TLV").

Given that the invention of Fukuta in view of Tokura and SMS Forum both relate to field of congestion control (see SMS Forum; page 43 "2.9 Flow Control and Congestion Control") in an TCP/IP based network (see SMS Forum; page 12 "Figure 1-1 SMPP Network Diagram"), it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Fukuta in view of Tokura, as taught by SMS Forum, thereby better assist a peer (ESME or MC) in avoiding congestion by providing a mechanism to provide the receiving peer with an indication of its state of congestion (see SMS Forum; page 43 "2.9 Flow Control Congestion Avoidance").

22. Claims **23, 18, 24** and **31, 26, 32** rejected under 35 U.S.C. 103(a) as being unpatentable over **Fukuta ("US 5,090,011")** in view of **Tokura ("US 5,400,329")**, and further in view of **Thornberg ("US 5,757,772")**.

Fukuta in view of Tokura disclose:

Regarding claim 23, the station , with congestion detection means (see Fukuta; col. 6 lines 8-19; "congestion detector 223 for measuring the number of occupied packets in a buffer to detect buffer congestion and with a congestion indicator adding circuit 225 for setting the congestion indicator region(CONG)") detecting congestion using delay (Fukuta does not refer to "delay" throughout his document. He talks about "POLLING" during a "CONGESTION PERIOD" thus an existence of some sort of delay but is silent about a delay specified by STATION with a prescribed time interval) in the response from the interconnected station on the output side (see Fukuta; FIG. 16; "CONGESTION CEASE NOTICE" is a congestion control notice, thus conducting congestion control) to a request to transfer said message information to the interconnected station on the output side (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50a" and "PACKET SWITCHES 60a-c"; col. 11 lines 41-55; "The packet switch 60c transfers at an occurrence of the congestion, a packet from the packet communications equipments equipment 50a to the packet communication equipment 50b and sends further a congestion notice packet to the packet communication equipment 50a" thus sends it downstream to a interconnected station on the output side of the station).

Regarding claim 18, the station and a prescribed delay time..

Regarding claim 24, the station , further comprising: issuance means for issuing a circuit state verification request with a prescribed period (see Fukuta; col 16 lines 21-40; "The packet communication equipment 50a having received the congestion notice packet thereafter interrupts the transmission of data packet so as to transmit a polling packet at a constant interval of time") with respect to a session (see Fukuta; FIG. 12; establishment of a session) in the interconnected station on the output side that has is to be in a congested state by said congestion control means (see Fukuta; FIG. 13; time-based congestion illustration).

Fukuta in view of Tokura are silent about:

Regarding claim 23, wherein said congestion detection means detects that congestion has occurred in the interconnected station on the output side when the average response time in a plurality of the latest responses has reached m times (where m > 1) of the average response time in the normal state.

Regarding claim 18, wherein said prescribed delay time is a time obtained by dividing an average response time from the interconnected station on the output side by a session number in the interconnected station on the output side that is multiplied by a margin ratio.

Regarding claim 24, congestion detection means detects that a congested state in said session has been eliminated when the average response time in a

plurality of the latest responses to the issued requests from said issuance means has become equal to or less than the average response time in the normal state.

However, in a related field of endeavor:

Thornberg discloses:

Regarding claim 23, wherein said congestion detection means detects that congestion has occurred in the interconnected station on the output side (see Thornberg; FIG. 8A; "EVALUATE CONGESTION", thus a congestion detection means) when the average response time in a plurality of the latest responses has reached m times (where m > 1) of the average response time in the normal state (see Thornberg; col. 16 lines 47-57; "To evaluate congestion at step 818 it is determined if $T<T_{con}$").

Regarding claim 18, wherein said prescribed delay time (see Thornberg; FIG. 10 ; "AVERAGE PACKET DELAY CALCULATOR") is a time obtained by dividing an average response time (see Thornberg) from the interconnected station on the output side by a session number (see Thornberg) in the interconnected station on the output side that is multiplied by a margin ratio (see Thornberg; ; FIG. 11; "SELECTOR" for calculations).

. Regarding claim 24, congestion detection means detects that a congested state (see Thornberg; FIG. 8A; "EVALUATE CONGESTION", thus a congestion detection means) in said session has been eliminated when the average response time in a plurality of the latest responses to the issued requests from said issuance means has become equal to or less than the average response

time in the normal state (see Thornberg; col. 16 lines 47-57; “To evaluate congestion at step 818 it is determined if $T<T_{con}$”).

Given that the invention of Fukuta in view of Tokura and Thornberg both relate to congestion control (see titles), it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Fukuta in view of Tokura, as taught by Thornberg, thereby creating providing a method and system for controlling packet transmission delay on one or more packet switched radio channels (see Thornberg; col. 2 lines 18-26) through a method and system for managing the flow of prioritized user to, from, and between one or more packet switched radio channels, with each packet switched radio channel having a maximum tolerable packet transmission delay (see Thornberg; col. 2 lines 27-31).

Fukuta in view of Tokura disclose:

Regarding claim 31, the station , wherein said congestion detection means (see Fukuta; col. 6 lines 8-19; “congestion detector 223 for measuring the number of occupied packets in a buffer to detect buffer congestion and with a congestion indicator adding circuit 225 for setting the congestion indicator region(CONG)”) congestion using delay (Fukuta does not refer to "delay" throughout his document. He talks about "POLLING” during a “CONGESTION PERIOD” thus an existence of some sort of delay but is silent about a delay specified by STATION with a prescribed time interval) , in the response from the

interconnected station on the output side (see Fukuta; FIG. 16; “CONGESTION CEASE NOTICE” is a congestion control notice, thus conducting congestion control) to a request to transfer said message information to the interconnected station on the output side (see Fukuta; FIG. 12 and FIG. 13; "PACKET TERMINAL EQUIPMENT 50a” and “PACKET SWITCHES 60a-c”; col. 11 lines 41-55; “The packet switch 60c transfers at an occurrence of the congestion, a packet from the packet communications equipments equipment 50a to the packet communication equipment 50b and sends further a congestion notice packet to the packet communication equipment 50a” thus sends it downstream to a interconnected station on the output side of the station).

Regarding claim 26, the station , and a prescribed delay time.

Regarding claim 32, the station , further comprising: issuance means for issuing a circuit state verification request with a prescribed period (see Fukuta; col 16 lines 21-40; “The packet communication equipment 50a having received the congestion notice packet thereafter interrupts the transmission of data packet so as to transmit a polling packet at a constant interval of time”) with respect to a session (see Fukuta; FIG. 12; establishment of a session) in the interconnected station on the output side that is detected to be in a congested state by said congestion control means (see Fukuta; FIG. 13; time-based congestion illustration)

Fukuta in view of Tokura are silent about:

Regarding claim 31, wherein said congestion detection means detects that congestion has occurred in the interconnected station on the output side when the average response time in a plurality of the latest responses has reached m times (where m > 1) of the average response time in the normal state.

Regarding claim 26, wherein said prescribed delay time is a time obtained by dividing an average response time from the interconnected station on the output side by a session number in the interconnected station on the output side that is multiplied by a margin ratio.

Regarding claim 32, congestion detection means detects that a congested state in said session has been eliminated when the average response time in a plurality of the latest responses to the issued requests from said issuance means has become equal to or less than the average response time in the normal state.

However, in a related field of endeavor:

Thornberg discloses:

Regarding claim 31, wherein said congestion detection means detects that congestion has occurred in the interconnected station on the output side (see Thornberg; FIG. 8A; "EVALUATE CONGESTION", thus a congestion detection means) when the average response time in a plurality of the latest responses has reached m times (where m > 1) of the average response time in the normal state (see Thornberg; col. 16 lines 47-57; "To evaluate congestion at step 818 it is determined if $T<T_{con}$").

Regarding claim 26, wherein said prescribed delay time (see Thornberg; FIG. 10 ; "AVERAGE PACKET DELAY CALCULATOR") is a time obtained by dividing an average response time (see Thornberg) from the interconnected station on the output side by a session number (see Thornberg) in the interconnected station on the output side that is multiplied by a margin ratio (see Thornberg; ; FIG. 11; "SELECTOR" for calculations).

. Regarding claim 32, congestion detection means detects that a congested state (see Thornberg; FIG. 8A; "EVALUATE CONGESTION", thus a congestion detection means) in said session has been eliminated when the average response time in a plurality of the latest responses to the issued requests from said issuance means has become equal to or less than the average response time in the normal state (see Thornberg; col. 16 lines 47-57; "To evaluate congestion at step 818 it is determined if $T<T_{con}$").

Given that the invention of Fukuta in view of Tokura and Thornberg both relate to congestion control (see titles), it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the invention of Fukuta in view of Tokura, as taught by Thornberg, thereby creating providing a method and system for controlling packet transmission delay on one or more packet switched radio channels (see Thornberg; col. 2 lines 18-26) through a method and system for managing the flow of prioritized user to, from, and between one or more packet switched radio channels, with

each packet switched radio channel having a maximum tolerable packet transmission delay (see Thornberg; col. 2 lines 27-31).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADAM DUDA whose telephone number is (571)270-5136. the examiner can normally be reached on Mon. - Fri. 9:30 a.m. - 7:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang B. Yao can be reached on (571) 272 - 3182. the fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ADAM DUDA/
Examiner, Art Unit 2416

/Kwang B. Yao/
Supervisory Patent Examiner, Art Unit 2416